

CLAIMS

1. A fluorometer for detecting intensity of fluorescence generated from a substance that is excited by light emitted from a light source,
5 wherein intensities P₁, P₂, ..., P_n of the fluorescence are detected respectively in n (n is an integer of not less than 2) limited wavelength regions $\lambda_1, \lambda_2, \dots, \lambda_n$ of the fluorescence.
- 10 2. The fluorometer according to claim 1, wherein a relative ratio or a difference between the detected intensities P₁, P₂, ..., P_n of the fluorescence is determined.
- 15 3. A fluorometer for detecting intensity of fluorescence generated from a substance that is excited by light emitted from a light source, comprising:
n (n is an integer of not less than 2) narrow-band-pass filters for transmitting light in different limited wavelength regions of the fluorescence, and
n light-receiving portions having one-to-one correspondence with the n narrow-band-pass filters,
20 wherein an intensity P₁ of fluorescence transmitted through a first narrow-band-pass filter is detected by a first light-receiving portion, and
wherein fluorescence reflected from an (n-1)-th narrow-band-pass filter is allowed to enter an n-th narrow-band-pass filter, and an intensity P_n of fluorescence transmitted through the n-th narrow-band-pass filter is
25 detected by an n-th light-receiving portion.
- 30 4. The fluorometer according to claim 3, wherein a relative ratio or a difference between the intensities P₁, P₂, ..., P_n of the fluorescence detected respectively by the n light-receiving portions is determined.
- 35 5. A fluorometer for detecting intensity of fluorescence generated from a substance that is excited by light emitted from a light source, comprising:
n (n is an integer of not less than 2) narrow-band reflection-type notch filters for reflecting light in different limited wavelength regions of the fluorescence, and
n light-receiving portions having one-to-one correspondence with the n narrow-band reflection-type notch filters,

wherein an intensity P_1 of fluorescence reflected from a first narrow-band reflection-type notch filter is detected by a first light-receiving portion, and

5 wherein fluorescence transmitted through an $(n-1)$ -th narrow-band reflection-type notch filter is allowed to enter an n -th narrow-band reflection-type notch filter, and an intensity P_n of fluorescence reflected from the n -th narrow-band reflection-type notch filter is detected by an n -th light-receiving portion.

10 6. The fluorometer according to claim 5, wherein the narrow-band reflection-type notch filter comprises a pair of glass substrates and a photopolymer arranged between the pair of glass substrates, and a periodic change in refractive index of the photopolymer occurs in its thickness direction.

15 7. The fluorometer according to claim 5, wherein a relative ratio or a difference between the intensities P_1, P_2, \dots, P_n of the fluorescence detected respectively by the n light-receiving portions is determined.

20 8. The fluorometer according to any one of claims 1, 3, and 5, wherein the light source is a light-emitting diode.

9. The fluorometer according to any one of claims 1, 3, and 5, wherein the light source is a wavelength-variable semiconductor laser.

25 10. The fluorometer according to any one of claims 1, 3, and 5, wherein a rare-earth element is added to the substance.

30 11. The fluorometer according to any one of claims 1, 3, and 5, wherein a wavelength width of a spectrum of the fluorescence generated from the substance is detected by comparing the detected intensities P_1, P_2, \dots, P_n of the fluorescence.